

Results of the Cancer Teaching Program In Dental Schools

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A PROGRAM of grants to dental schools for the integration and improvement of cancer teaching was inaugurated in 1948 as a step toward the control of intraoral neoplastic disease through earlier diagnosis and treatment. The program has been expanded steadily until, at the present time, the National Cancer Institute is administering Public Health Service grants to 43 dental schools throughout the country. The results have been gratifying, especially in that the new generations of practicing dentists are aware of the important part they can play in the early detection of cancer in their patients.

It was the opinion of the staff and advisers of the National Cancer Institute in 1947 that the dental profession could take an important part in cancer control. This feeling was based on a number of factors. Among them was the knowledge that the most effective way to discover cancer in an early stage is through careful periodic examinations. Because the dental profession, through its public education program, has been successful in motivating people to visit their dentists regularly, the dentist has an unequalled opportunity for periodic inspection of the oral cavity among his patients under the most desirable conditions. Therefore,

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the dentist, if properly informed and trained, is in a position to discover many early cases of cancer.

In addition, experience has shown that an appreciably large number of patients with intraoral cancer, particularly cancer of the gingivae, consult their dentist prior to seeking advice from their physician, thereby providing the dentist with the initial opportunity to discover and observe early cancer. Coupled with this is another advantage possessed by a member of the dental profession. That is the opportunity to follow up the patient whom he has advised to seek further medical attention. This followup can be accomplished by the simple procedure of scheduling a dental appointment subsequent to the date the patient was referred for medical attention.

Often the dentist can aid cancer control by searching for and correcting oral conditions which may contribute to the causation of cancer. Finally, the dentist can contribute to the welfare of the cancer patient through proper dental care and preparation of necessary appliances and prostheses.

In 1947, at a joint meeting of the National Cancer Institute and the Council on Dental Education of the American Dental Association, it was agreed that the dental profession in general would be aided if a program were initiated to orient the profession to the specific dental aspects of the cancer problem. It was agreed that this orientation could best be accomplished by an approach to the oncoming generation of dentists through integration and improvement of

oral cancer instruction in the dental schools. With the approval of the National Advisory Cancer Council, the institute undertook a program of grants under which approved dental schools were eligible to receive up to \$5,000 annually.

The history of participation of the 43 schools cooperating in the program has been as follows:

<i>Schools</i>	<i>Year of participation</i>
17-----	7th
16-----	6th
4-----	5th
2-----	4th
2-----	2d
1-----	1st

NOTE: 1 school participated for 2 years but was unable to continue because of personnel problems.

Upon the initiation of the program in each school, a member of the faculty was designated to serve as cancer coordinator. At present the coordinators are distributed in the following disciplines:

Oral pathology-----	11	Histology-----	1
Oral surgery-----	6	Associate dean-----	1
General pathology---	7	Associate professor of	
Oral medicine-----	4	dentistry-----	1
Deans-----	4	Oral diagnostician--	1
Dental medicine----	2	Dental prosthesis---	1
Clinical pathology--	1	Periodontology-----	1

This current distribution reflects a turnover of approximately 25 percent of the coordinators since the inception of the cancer teaching program, although, by and large, the group has remained relatively stable. In the majority of the schools, the coordinator has the benefit of the advice and assistance of a cancer teaching committee, appointed during the initial period of the grants program.

Areas of Deficiency

At the outset of the program these individuals and committees reviewed the teaching of cancer within their own schools and, with the exception of a very few schools, uncovered the following findings in relation to such instruction:

A general belief prevailed within and outside the schools that dentistry was essentially a restorative art and that knowledge of cancer was not pertinent to dental practice.

The teaching of oral cancer was unorganized, uncoordinated, nonsystematic, and casual.

There was not time in the dental curriculum for courses other than those concerned with restorative dentistry.

A scarcity of suitable teaching material existed among patients admitted primarily for dental treatment.

Little or no histopathological cancer material was available.

Practically no student slide collections of cancer were available.

Very little opportunity existed for students to observe cases of clinical cancer either on a demonstration basis or through clinic or hospital experience.

Teaching materials and equipment were inadequate to provide instruction on the cancer problem.

Experienced personnel qualified to provide cancer instruction were insufficient.

There was generally inadequate correlation between preclinical and clinical teaching.

These represent, in general, the major areas of deficiency encountered by representatives of the schools, although others of varying degree and type existed in some schools.

Allocation of Funds

It was recognized on initiating the cancer teaching program that the most effective methods of improving cancer instruction would vary from school to school, and it was decided that each school should have the opportunity to develop the type of program which best met its particular circumstances.

An analysis of the funds requested by the dental schools gives some indication of the uses to which the schools put the grants. In the first year of operation the total grants for all participating schools were distributed in this manner: 57 percent for personnel, 19.1 percent for permanent equipment, 13 percent for consumable supplies, 5.9 percent for travel, 2.4 percent for other expense, and 2.6 percent for overhead. In 1954 the funds requested were distributed in the following manner: 75.7 percent for personnel, 8.0 percent for permanent equipment, 5.9 percent for consumable supplies, 4.5 percent for travel, 0.4 percent for other ex-

pense, and 5.5 percent for overhead. During the course of the program there has been a general tendency to increase the percentage for personnel and overhead and to decrease the percentage in the other categories—consumable supplies, permanent equipment, travel, and other expense.

More Time and Materials

The schools have shown many similarities in their efforts to improve cancer teaching. All of the schools in one way or another have been able to rearrange their curriculums to add a sizable number of clock hours of cancer instruction in both didactic lectures and laboratory exercises. Additional emphasis has been placed on cancer in oral pathology by 36 schools, general pathology by 27, oral diagnosis by 24, oral surgery by 23, oral medicine by 4, dental medicine by 2, prosthetics by 1, and periodontia by 1. In addition, new courses of various types specifically concerned with oral cancer have been added to the curriculum by 25 schools.

Since effective teaching in oral cancer, as in any type of cancer instruction, is directly related to the quantity and quality of clinical material available for presentation, 24 schools have supplemented their clinical teaching by arranging for their students to participate in tumor clinic activities through association or affiliation with teaching hospitals. Two additional schools have organized their own clinics or oral diagnostic centers; 11 additional schools present patients to students through demonstration clinics; and 2 schools accomplish this by means of ward walks. Sixteen schools conduct tumor conferences as a part of their teaching programs. Thus, an increasing number of dental students have an opportunity to observe patients with cancer in all stages of the disease and to become familiar with differential diagnosis along with the various methods of therapy.

To increase histopathology material for student instruction, 26 schools have established a biopsy diagnostic service for dental practitioners. In most instances this tissue service was established by the expansion of existing facilities through the purchase of equipment and the acquisition of technicians under the grants,

but in 9 schools grant funds were used to initiate and establish new tissue laboratories. In all 26 schools student work with tissue slides has been markedly increased, and for the first time adequate individual student slide collections have been made available. Four schools require students to attend autopsy examinations of cancer patients. In the schools providing this biopsy service there has been a marked, steady increase in the number of biopsy specimens received. Without exception the schools consider this increase one measure of the success of their cancer teaching program since recent graduates are contributing the greater share of the biopsy specimens. Twenty-four schools demonstrate how to take a biopsy, while in 16 schools the student is required to take one or more biopsies and follow through the processing of the specimen to the histological slide.

The grant program has made it possible for all participating dental schools to strengthen their visual education and teaching materials. These vary from school to school but include color photographs of cancer lesions, lantern slides, histopathological slides, photomicrographs, exhibits, specimen displays, mouldages, models, films, and filmstrips as well as equipment such as cameras, projectors, screens, slide viewers, microscopes, and scopicons. Four schools have prepared short films on biopsy techniques for the instruction of students as well as practitioners.

Enlarged Staffs

Further evidence that the schools' interest in cancer teaching has increased in spite of the limited amount of the grants is the fact that 13 professional persons and 21 nonprofessional laboratory technicians, photographers, and a laboratory secretary have been added to the staffs of the schools as a direct result of these grants. In addition, numerous staff members have contributed time and effort toward the teaching program without any monetary recompense from the grants. In the field of personnel, two schools have used some of their funds for teacher training.

The grants have stimulated nine schools to undertake cancer and other research activities, and they have established programs which pro-

vide students the opportunities for investigative work.

Special lectures and seminars have been used by 24 schools as a method to increase cancer instruction. As in many teaching programs, and this one is no exception, the cancer teaching spills over from the undergraduate area into the postgraduate. Students, as well as practitioners, participate in the lectures and seminars mentioned above. Ten schools have established specific programs of postgraduate education. One of these has initiated a case history service for practitioners, and the remainder offer refresher courses and special or postgraduate courses for practitioners and graduate students.

This summation of specific accomplishments as a result of the stimulation of cancer teaching grants is based on special reports from the individual schools expressing objectively the actual results attributable to the grants and a personal knowledge of the programs in a number of the schools gained through field visits by the staff of the National Cancer Institute. Many of the coordinators have expressed the belief that a cancer learning test developed for dental schools is valuable for measuring the improvement of cancer teaching within their institutions. Twelve schools have reported a steady improvement in the scores of their students during the years they have participated in the testing program.

Summary

A number of years have gone by since the initiation of the cancer teaching program, and

it is now possible to take a long-range view of its effect and to enumerate a number of general accomplishments:

- It has made possible the expansion of oral cancer instruction and increased the curriculum time devoted to cancer teaching.

- It has increased clinical material for dental students.

- It has increased student participation in clinical cancer activities.

- It has promoted the development and utilization of teaching materials, facilities, and equipment.

- It has helped correct the traditional view that knowledge of cancer was not pertinent to dentistry and helped to clarify the role of the dentist in control of the disease.

- It has strengthened cooperative relationships between the medical and dental professions.

- It has increased the dental students' awareness of cancer and has impressed on him his responsibility for the early recognition of cancer.

- It has developed teaching personnel within dental staffs.

- It has augmented and enhanced the quality of oral cancer instruction.

- It has increased cancer facilities and services.

- It has stimulated the establishment of diagnostic biopsy services.

- It has stimulated and expanded research interests of dental school facilities.

- It has pointed up the need for cancer instruction in postgraduate fields.

- Lastly, it has accomplished a general improvement in the teaching of oral cancer.

